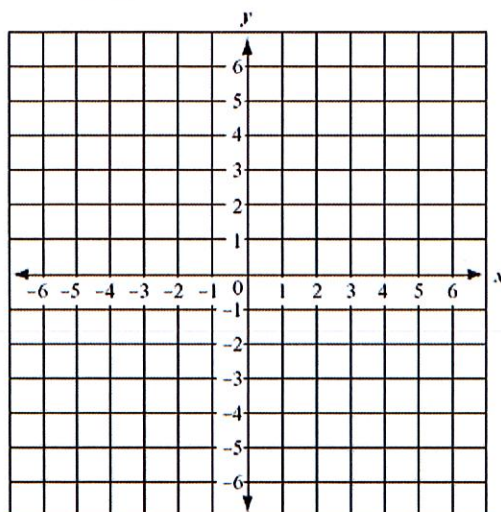


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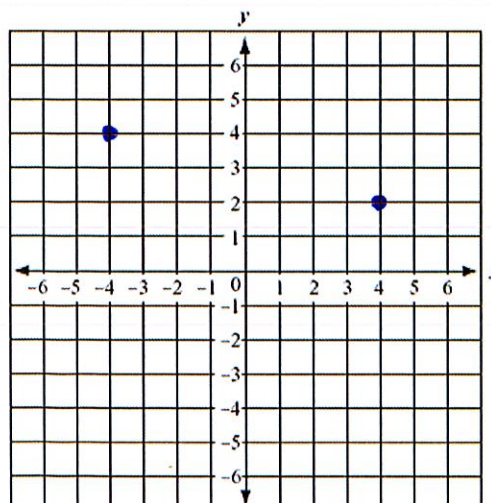
Directions: Try each problem without your calculator, then use your calculator ONLY if you feel you have truly tried everything possible without your calculator.

1. Line A has equation  $y + 10 = \frac{-1}{4}(x - 11)$ . Line B contains the point  $(-2, 3)$  and is perpendicular to line A. Determine an equation for line B in any form.

2. Graph  $-2x + 3y = -12$  (plot several points and draw your line neatly)



3. A line contains the points plotted below. Write an equation of the line in point-slope form, slope-intercept form, and general form (standard form).



4. Write a formula for the AREA of an equilateral triangle as a function of its side length,  $x$ .

5. Identify the domain and range of the function  $g(x) = \sqrt{4-x} + 1$ .

6. Identify the domain and range of the function  $k(x) = \sqrt{x^2 - 4}$ .

7. Determine whether the function  $g(x) = x^{\frac{1}{3}}$  is even, odd, or neither.

8. Determine whether the function  $k(x) = x^2 - 3x$  is even, odd, or neither.

9. Determine whether the function  $m(x) = |x|$  is even, odd, or neither.

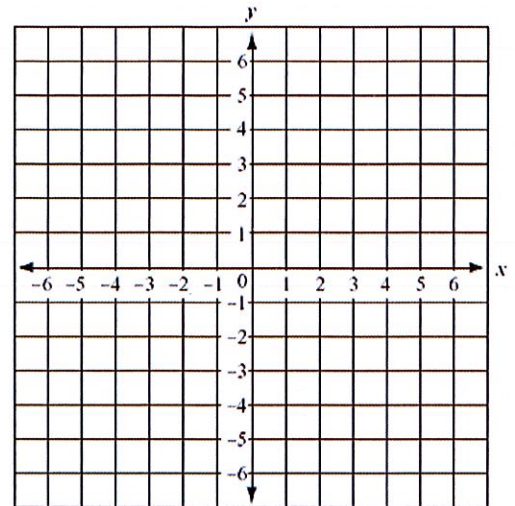
10. Given the piecewise function  $f(x) = \begin{cases} -2x+7 & \text{if } x < 2 \\ \frac{1}{2}x+2 & \text{if } 2 \leq x < 6 \end{cases}$ , determine the following:

a. A graph the function

b. The value of  $f(3)$

c. If the function is continuous at  $x = 2$

d. The domain of the function



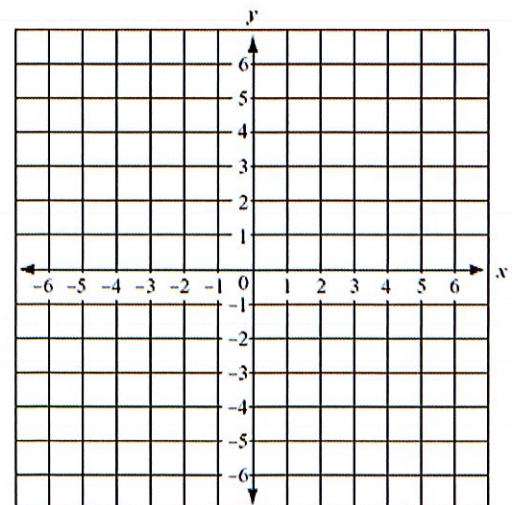
11. Given the exponential function  $f(x) = 2^x - 1$ :

a. Draw a fairly neat and accurate graph of the function.

b. State the domain and range of the function.

c. Determine and equation of any asymptotes of the function.

d. Determine the zero or root of the function.



12. The population of Sunshine Gap in the year 1910 was 7583. Assume the population increased at a rate of 3.5% per year.

a. Write a function for the population growth as a function of time in years.

b. Estimate the population in 1920.

c. Approximate the year when the population reached 30,000.